THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL L. KRANKKALA

Appeal No. 94-1035
Application 07/518,223[1]

HEARD: May 6, 1996

Before KIMLIN, GARRIS and PAK, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

[1] Application for patent filed May 3, 1990. According to appellant, the application is a continuation-in-part of Application 07/038,013, filed April 14, 1987, now abandoned, which is a division of 06/844,853, filed March 27, 1986, now Patent No. 4,677,145, granted June 30, 1987, which is a continuation-in-part of 06/751,462, filed July 2, 1975, now Patent No. 4,600,737, granted July 15, 1986, which is a continuation of 06/612,359, filed May 21, 1984, now abandoned.

This is an appeal taken under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1 through 9 which are all the claims remaining in the application.

Claim 1 is representative of the subject matter on appeal and reads as follows:

1. A method for the manufacture of corrugated board in which at least one liner is bonded to at least one fluted medium with an adhesive, which methods comprises:

(a) obtaining a fluted medium;

(b) preparing an adhesive by contacting (1) a liquid concentrate composition comprising (i) a major proportion of water and (ii) a cold water soluble, partially hydrolyzed polyvinyl alcohol having a degree of hydrolysis of less than about 91%; (2) an alkali metal hydroxide; (3) a boric acid compound; and (4) water to produce an aqueous emulsion comprising a major proportion of water, about 5 to 50 parts of starch per each 100 parts of adhesive, sufficient alkali metal hydroxide to provide an alkaline pH, about 0.1 to 5 parts of a boric acid compound per each 100 parts of water, and an effective amount of the cold water soluble partially hydrolyzed polyvinyl alcohol having a degree of hydrolysis of less than about 91% sufficient to increase the rate of green bond formation wherein the concentration of the polyvinyl alcohol in the adhesive composition is about 0.01 to 1.5 parts of the polyvinyl alcohol per 100 parts of the adhesive composition wherein the polyvinyl alcohol is made from a homopolymer of vinyl acetate;

(c) applying an effective bonding amount of the adhesive composition to the fluted medium to form a bond line;

(d) contacting the fluted medium with the liner at the bond line; and

(e) curing the bond line to bond the liner to the fluted medium.

The sole reference of record relied upon by the examiner is:

Japanese Kokai Patent 45-19600 July 4, 1970
(Imoto[2])

The appealed claims stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as being unpatentable over the disclosure of Imoto.

We reverse.

The subject matter on appeal is directed to a method for manufacturing corrugated board wherein the adhesive employed in manufacturing the board is prepared from starch, cold water soluble partially hydrolyzed polyvinyl alcohol having certain degrees of hydrolysis, an alkali metal hydroxide, a boric acid compound and water in certain proportions. The significance of the appealed subject matter lies in the degree of hydrolysis of the cold water soluble polyvinyl alcohol and the relatively small amount of this polyvinyl alcohol employed. See page 4 of the specification.

This appealed subject matter is substantially identical to the subject matter decided by the previous merits panel in Appeal

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[2] This Japanese Kokai Patent is referred to by the examiner as "Kura" and by appellant as "Kurasecki". However, the translation of record indicates that the first named inventor for the subject matter disclosed and claimed in the Japanese Kokai Patent is "Saburo Imoto".

This appealed subject matter is substantially identical to the subject matter decided by the previous merits panel in Appeal No.93-3293, attached herewith. The principal issue raised in that appeal (Appeal No. 93-3293) was whether Imoto alone, or in combination with Hawkins[3], would have rendered the employment of a cold water soluble polyvinyl alcohol having the claimed degree of hydrolysis in the claimed amount obvious to one of ordinary skill in the art. In this appeal, the principal issue raised is whether Imoto describes or would have rendered obvious the employment of a cold water soluble polyvinyl alcohol having the claimed degree of hydrolysis in the claimed amount. Having carefully reviewed the content of Imoto, we agree with appellant that Imoto does not suggest, much less describe employing a cold water soluble polyvinyl alcohol having the claimed degree of hydrolysis in the claimed amount in the context of forming an adhesive useful for manufacturing corrugated boards as fully explained by the previous merits panel at pages 5 and 6 of the decision on Appeal No. 93-3293. Suffice it to say that Imoto does not explicitly describe the claimed degree of hydrolysis of water soluble polyvinyl alcohol and the claimed relatively small

[3] Hawkins was issued as U.S. Patent No. 3,135,648 on June 2, 1964.

amount of the same, nor does it recognize them as result effective variables. Accordingly, the examiner's rejection under §102 or §103 cannot be sustained[4].

As a final point, we observe that the subject matter of the appealed claims appears to be susceptible to an obviousness-double patenting rejection over the claims of Application S.N. 07/418,941. Accordingly, pursuant to the provision of 37 CFR § 1.196(d), the application is remanded to the Primary Examiner for consideration of the above ground of rejection of appealed claims 1 through 9. A period of two months is set in which the appellant may submit to the Primary Examiner an appropriate amendment, or a showing of facts or reasons, or both, in order to avoid the ground of rejection of the identified allowed claims.

Upon conclusion of the proceedings before the Primary Examiner on remand, this case should be returned to the Board by the Primary Examiner so that the Board may either adopt its decision as final or render a new decision on all of the claims on appeal, as it may deem appropriate. Such return is

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[4] Since we determine that the examiner has not established a *prima facie* case of unpatentability, we need not decide on the sufficiency of appellant's affidavits relating to commercial successes.

unnecessary if the application is abandoned as the result of an unanswered Office action, allowed or again appealed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED and REMANDED

EDWARD C. KIMLIN
Administrative Patent Judge

BRADLEY R. GARRIS
Administrative Patent Judge

CHUNG K. PAK
Administrative Patent Judge

) BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No. 94-1035
Application 07/518,223

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Paper No. 30

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL L. KRANKKALA

Appeal No. 93-3293
Application 07/418,941[1]

ON BRIEF

WINTERS, WILLIAM F. SMITH and TURNER, Administrative Patent Judges.

TURNER, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the examiner's decision finally rejecting claims 23-31 which are all of the claims in the

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[1]Application for patent filed October 6, 1989. According to applicant, the application is a continuation of Application 07/048,658 filed May 12, 1987, now abandoned; which is a division of Application 06/820,669 filed January 21, 1986, now U.S. Patent No. 4,673,698; which is a division of Application 06/751,462 filed July 2, 1985, now U.S. Patent No. 4,600,739; which is a continuation of 06/612,359 filed May 21, 1984, now abandoned.

application. Independent claim 23 is illustrative and is reproduced below:

23. A method for the manufacture of corrugated board in which at least one liner is bonded to at least one fluted medium with an adhesive, which method comprises:

(a) obtaining a fluted medium;

(b) preparing an adhesive by contacting:

(1) a dry blend composition comprising:

(i) a major proportion of starch useful in corrugating adhesives; and

(ii) a cold water soluble, partially hydrolyzed polyvinyl alcohol, made from a homopolymer of vinyl acetate and having a degree of hydrolysis of less than about 91%:

(2) an alkali metal hydroxide;

(3) a boric acid compound; and

(4) water to produce an aqueous emulsion comprising a major proportion of water, about 5 to 50 parts of starch per each 100 parts of adhesive, sufficient alkali metal hydroxide to provide an alkaline pH, about 0.1 to 5 parts of a boric acid compound per each 100 parts of water, and an effective amount of the cold water soluble partially hydrolyzed polyvinyl alcohol sufficient to increase the rate of green bond formation wherein the concentration of the polyvinyl alcohol in the adhesive composition is about 0.5 to 1.5 parts of the polyvinyl alcohol per 100 parts of the adhesive composition;

(c) applying an effective bonding amount of the adhesive composition to the fluted medium to form a bond line;

(d) contacting the fluted medium with the liner at the bond line; and

(e) curing the bond line to bond the liner to the fluted medium.

The references of record relied upon by the examiner are:

Hawkins	3,135,648	June 2, 1964
Japanese Kokai Patent (Imoto)	45-19600	Jul. 4, 1970

Additional reference cited by the Board of Patent Appeals and Interferences:

Kirk-Othmer, Encyclopedia of Chemical Technology, 3rd Edition, 1983, pages 849, 850, 856 and 857.

The appealed claims stand rejected under 35 U.S.C. § 103 as unpatentable over Imoto (referred to by the examiner as Kura and by Appellant as Kuraseki--according to the translation of record the first named inventor is Saburo Imoto) in view of Hawkins. We shall not affirm this rejection.

The subject matter on appeal is directed to a method of manufacturing corrugated board wherein the adhesive used in manufacturing the board is prepared from a starch and water soluble partially hydrolyzed polyvinyl alcohol, an alkali metal hydroxide, a boric acid compound and water in certain proportions. A more detailed description can be gleaned from a reading of claim 23.

Appellant observes that the claims stand or fall together (Brief, page 5).

OPINION

The claims are directed to a method for the manufacture of corrugated board. Claim 23 identifies the steps in the method.

Steps (a), (c), (d), and (e) are steps in the method which are not in dispute and, for all intents and purposes, have not been commented upon by Appellant and the examiner. The step which is in dispute and forms the basis of the examiner's rejection is step (b) which describes the preparation of the adhesive which is the bonding medium of the manufacturing method. The step comprises preparing the adhesive by contacting

(1) a dry blend composition comprising
-a major proportion of starch, and
-a cold water soluble, partially hydrolyzed polyvinyl alcohol having a degree of hydrolysis of less than about 91%;

(2) an alkali metal hydroxide;

(3) a boric acid compound; and

(4) water to produce an aqueous emulsion.

Step (b) also specifies that a major proportion of water, 5 to 50 parts of starch, sufficient alkali to provide an alkaline pH, 0.1 to 5 parts of a boric acid compound, and an effective amount of the water soluble partially hydrolyzed polyvinyl alcohol are used and that the concentration of the alcohol in the adhesive is about 0.5 to 1.5 parts per 100 parts of the adhesive and the alcohol is fully solubilized in the aqueous adhesive.

The examiner relies upon Imoto for its teaching of adhesive compositions useful for corrugated cardboard manufacture wherein the adhesive contains

-a polyvinyl alcohol (PVA) powder
-a starch
-borax
-alkali hydroxide, and
-water

Hawkins, the secondary reference, is relied upon for its teaching that polyvinyl alcohol compositions which are useful as adhesives can be formed as dry blends of the alcohol, a water soluble boron compound and a dry acid. The dry blend, upon use, is added to water and heated prior to use.

The examiner concludes that it would have been prima facie obvious to employ the dry blending technique of Hawkins in conjunction with the composition of Imoto to arrive at the claimed method. The examiner states that it would have been obvious to do so "wherever deemed desirable and/or necessary; mere use of a known, available technique involved". On the basis of the record before us, we cannot agree with the conclusion of the examiner.

We recognize that the Imoto reference generally teaches the use of the components required by the claims here on appeal including "any water-soluble PVA" (page 3, line 1). However, the claims require a partially hydrolyzed PVA having a degree of hydrolysis of less than about 91% which is used at a concentration of 0.5 to 1.5 parts per 100 parts of the adhesive. Additionally, claim 23 requires, as a step in the manufacturing method, the preparation of the adhesive by contacting a dry blend

of the starch and the PVA with sufficient alkali metal hydroxide to provide an alkaline pH, a boric acid compound and water. Imoto does not require any particular degree of hydrolysis for the PVA to be employed but does use a PVA having a degree of hydrolysis of 99.1% in the example. The reference does suggest in a general manner the amount of PVA now claimed but does not indicate any significance as to the concentration of the PVA to be employed. The alkali of Imoto is said to reduce the setting temperature of the starch but the pH of the resulting adhesive composition is not indicated to be acidic or alkaline.

The significance of the claimed parameters regarding the degree of hydrolysis of the PVA and the relatively small amount of this PVA used in the present invention is set forth at page 4, lines 24-36. Contrary to the teachings of the prior art which at the time of the present invention would have led one to expect the listed ingredients of the adhesive composition to form a substantial gel or incompatible admixture, appellant found that there exists a threshold amount of the specified PVA below which the gelling or incompatibility problems of the prior art are avoided. These prior art problems are attested to by Castellani in his declaration under 37 CFR § 1.132 and supported by the exhibits attached thereto as well as the portion of Kirk-Othmer cited above (particularly at page 856). In short, we agree with appellant that Imoto would not have suggested the specific PVA

and the concentration in which it is used in the claims on appeal absent resort to the present disclosure of the claimed invention.

Hawkins does suggest the formation of a dry blend of PVA and starch in forming an adhesive composition but stresses the importance of using an acidic pH in contrast to the alkaline pH required by the claimed invention. Thus, we do not find that Hawkins cures the deficiencies of Imoto.

The decision of the examiner is reversed.

REVERSED

SHERMAN D. WINTERS)
Administrative Patent Judge)
)
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WILLIAM F. SMITH)
Administrative Patent Judge) BOARD OF PATENT
) APPEALS
) AND
) INTERFERENCES
VINCENT TURNER)
Administrative Patent Judge)
)

Appeal No. 93-3293
Application 07/418,941

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